Microsoft

Java on Azure: Building Spring Boot Microservices

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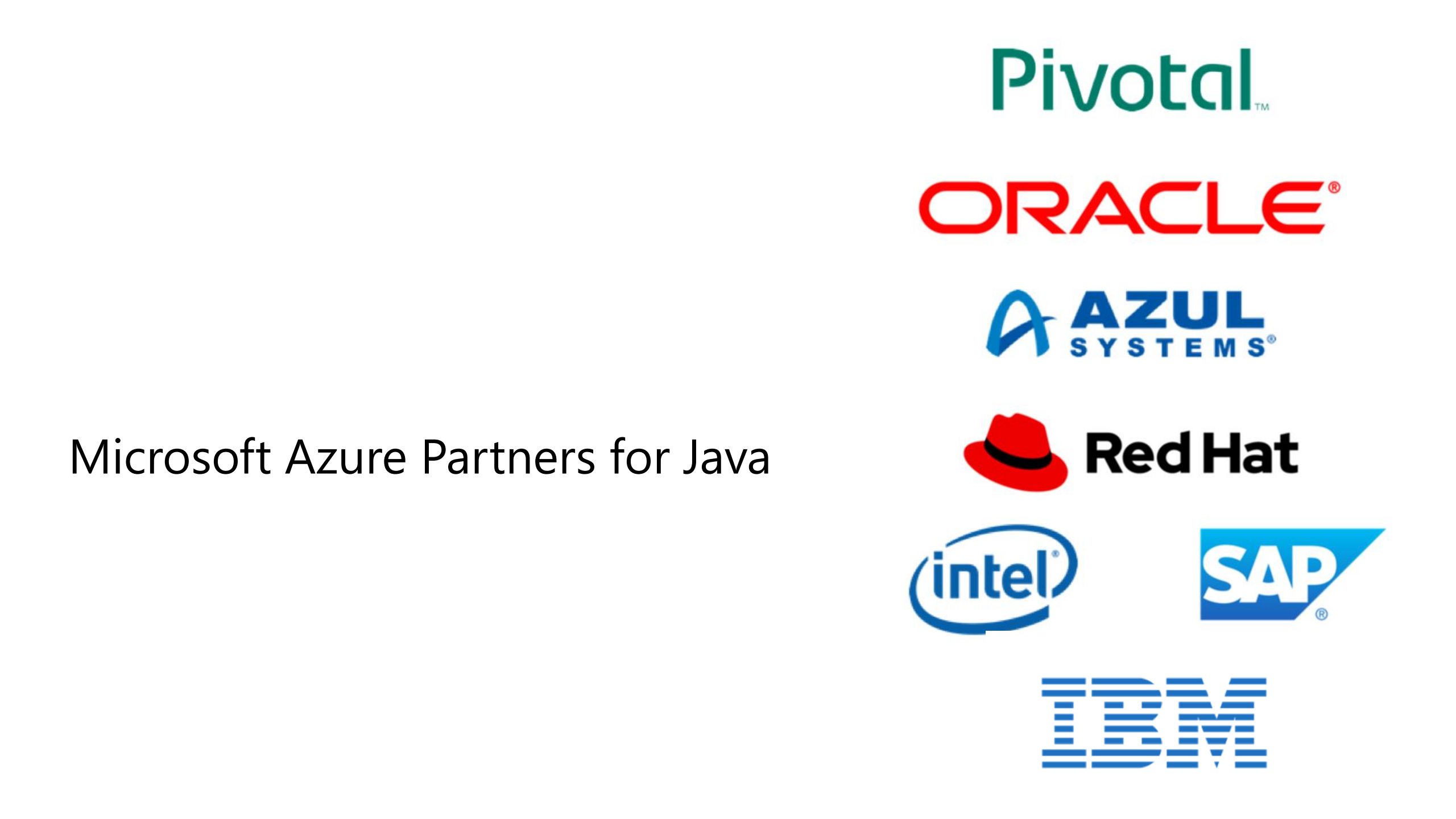
https://aka.ms/spring-boot-cloud

Agenda

- Java at Microsoft
- Microservices?
- Spring Framework
- Azure Spring Cloud

Microsoft Azure Partners for Java



Microsoft Uses Java Heavily

- **Azure**
  - Services dependent on Java include Azure Databricks, HDInsight, Spring Cloud, and more.
- **LinkedIn**
  - 100s of Java microservices in production.
  - Over 60+ Java open source projects on GitHub.
- **Minecraft**
  - Hundreds of servers built in Java.
  - Client Java Edition is very popular.
- **Yammer**
  - Java in the back-end.
  - Contributors to Dropwizard Web Framework.
- **SQL Server**
  - Java now embedded out of the box.
  - Polybase data visualization and Big Data Clusters interop with Spark, Hadoop connectors.
- **Android**
  - Thousands of developers building Android applications at Microsoft.
  - New Surface phone based on Android OS.

Serverless ?= Microservices

Azure Functions: Event driven compute

Events

React to timers, HTTP, or events from your favorite Azure services

Code

Author functions in C#, JavaScript, TypeScript, Java, Python, PowerShell

Outputs

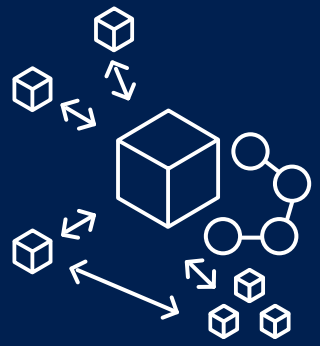
Send results to a growing collection of services

So what are Microservices?

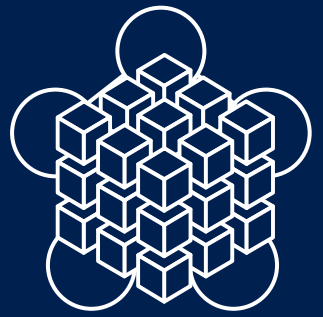
Monolith

Containerized Monolith

Monolith + new microservices

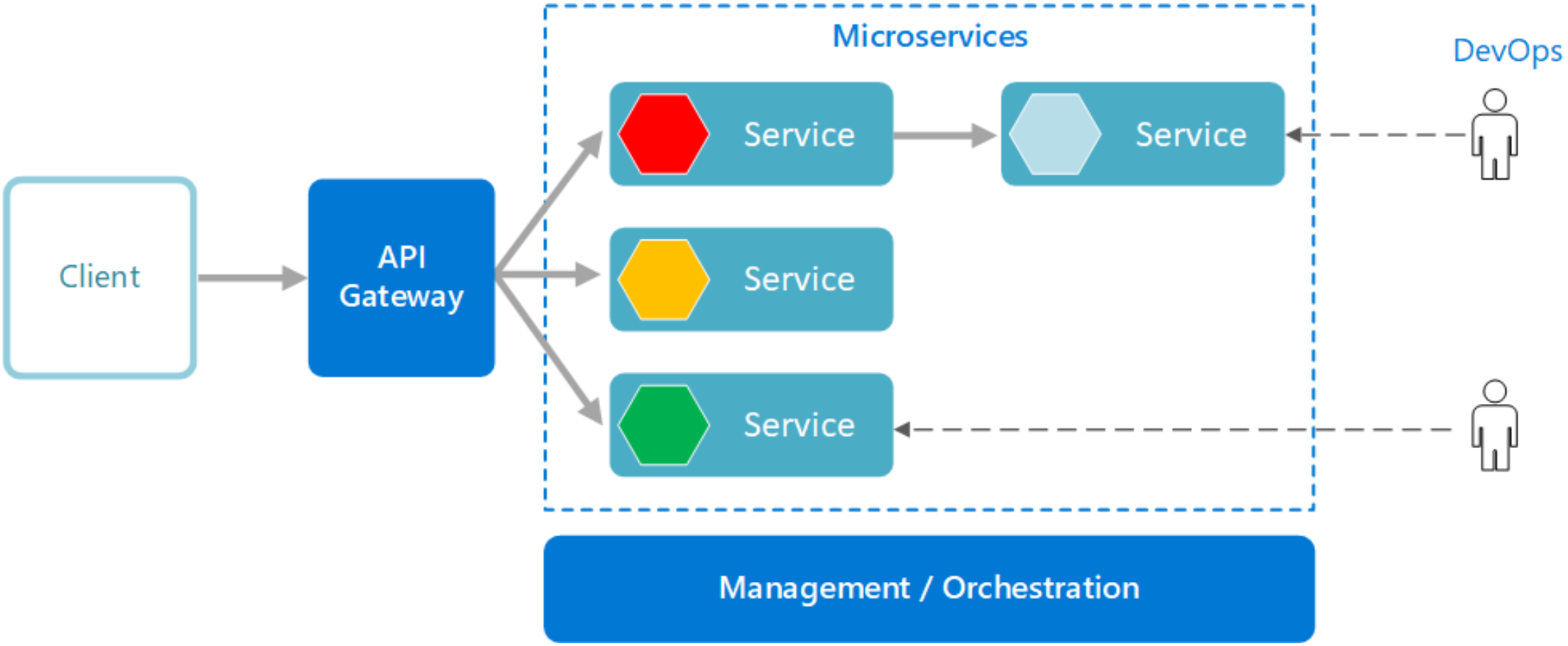


Parts of monolith extracted



Microservices or serverless application

Sample microservices architecture



Spring on Azure

cloud.spring.io/spring-cloud-azure/

Spring Cloud

- App Configuration
- Event Hubs
- Service Bus
- Storage
- Redis
- Functions

Spring Data

- SQL Database
- MySQL
- PostgreSQL
- Maria DB
- Cosmos DB
  - SQL
  - MongoDB
  - Cassandra
  - Gremlin

Spring Security

- Active Directory (AAD)
- AAD B2C
- Microsoft 365
- Microsoft Account

Spring Resource

- Storage

Spring Messaging

- Service Bus

R2DBC

- SQL Database
- PostgreSQL

Spring Cache

- Redis Cache

Micrometer

- Monitor (includes Log Analytics)

Spring-based Microservices Development

Spring Boot

BUILD ANYTHING

Spring Cloud

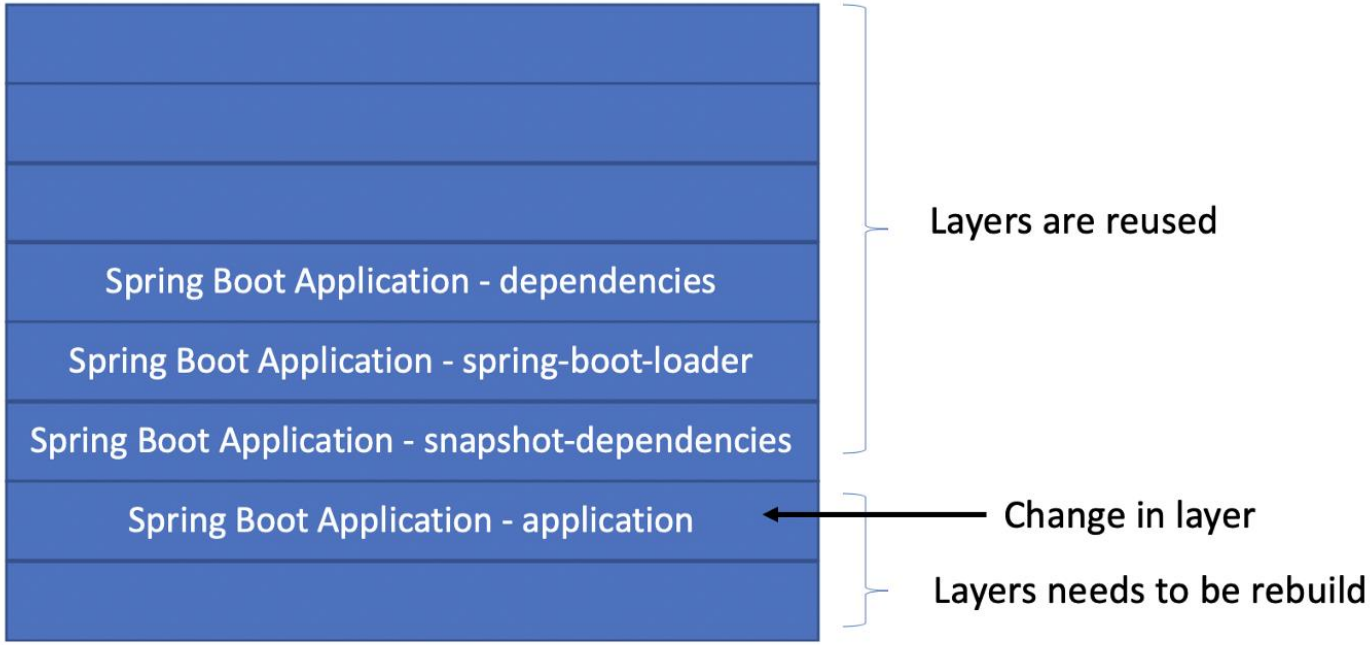
COORDINATE ANYTHING

Spring Boot is designed to get you up and running as quickly as possible, with minimal upfront configuration of Spring
Spring Cloud provides a set of tools that makes communication between microservices easier

Spring boot docker enhancements

Spring Boot version 2.3 -

- Cloud Native Buildpacks
- Layered Jars
- Preview on Azure
- Backed by Cloud native foundation + Pivotal



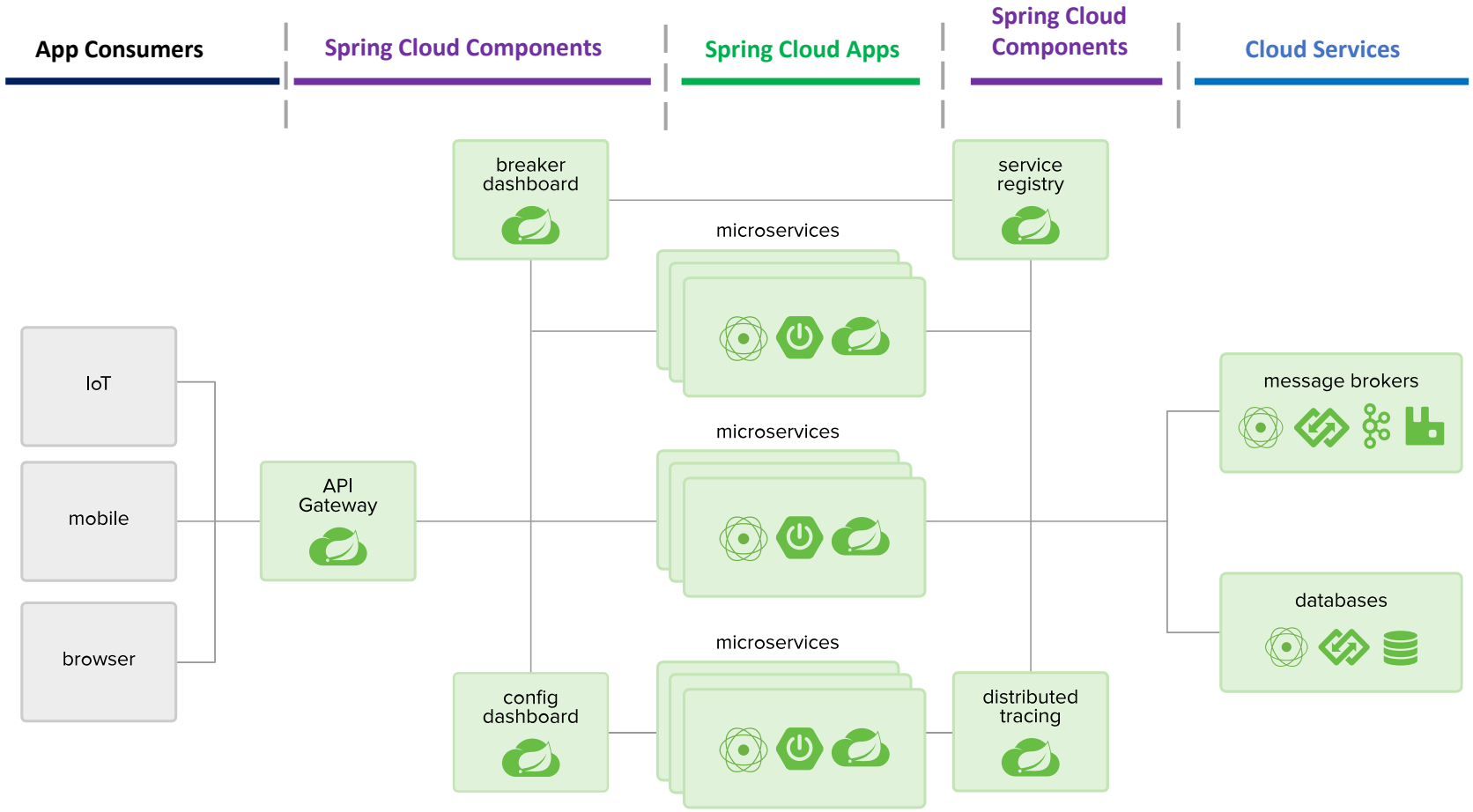
https://docs.microsoft.com/en-gb/azure/container-registry/container-registry-tasks-pack-build

Common Challenges

High effort required to manage cloud infrastructure for Spring boot applications.

Application lifecycle is **difficult to manage**.

Painful to troubleshoot application issues



Azure Spring Cloud

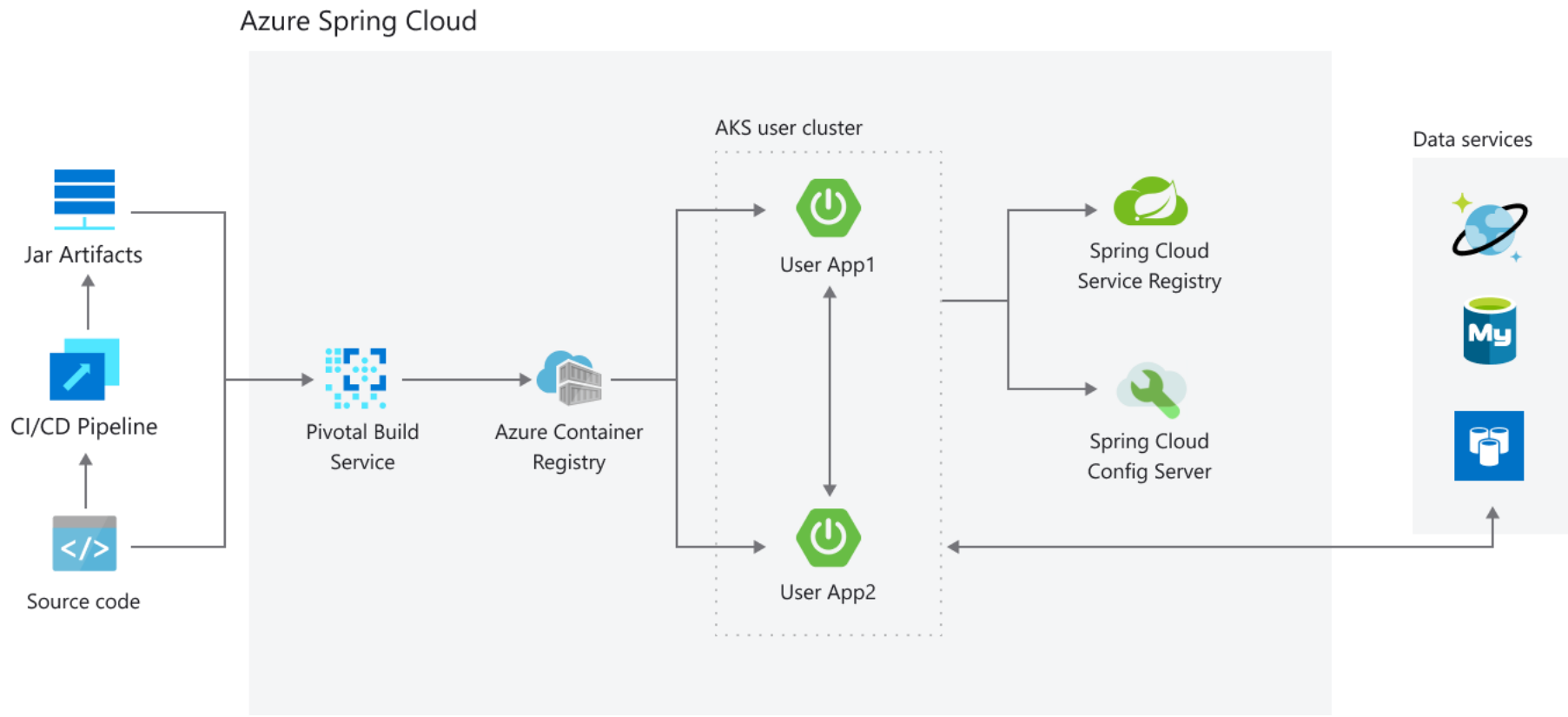
Simple app lifecycle management

Integrated CI/CD pipeline for deployment

Fully managed service

Monitoring and tracing

Scalability and Elasticity



- Demos

-Buildpacks + webapp
-Devops + Spring Boot
-Azure Spring Cloud +Redis

Microsoft

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